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J. F. B. Marshall, Editor.

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COINS, WEIGHTS, AND MEASURES.

PROPOSED CHANGE IN WEIGHTS, MEASURES, AND MONEYS IN GREAT BRITAIN AND THE UNITED STATES.

It may not be generally known, that a body of learned men in Great Britain have been engaged for some years in the "Commission" of devising a more simple and convenient system of weights, measures, and moneys; and as the question is one of deep importance to our own country, it may not be amiss to prepare our readers with a few observations anticipatory to the forthcoming "Report."

In two countries like Great Britain and the United States, which stand first in point of commerce in the known world, it can but be looked upon as a reproach that twenty-seven years of peace should have been suffered to elapse without this great desideratum having been accomplished, except in some trivial particulars; and the more so, as France, had at the earlier date of her Republic, proved to us its practicability and advantages. The subject, however, presents so many embarrassments for ingenuity to exercise itself upon, that it is difficult to bring a body of mathematicians to the same conclusion, in consequence of their not being able to agree to start from the same point. Napoleon, in the latter respect, was more favorably circumstanced—for he was not only a clear-headed mathematician himself, and therefore capable of judging of the matter, but when he had come to a conclusion, his power was sufficiently strong to carry out his views without resistance, even if his name had not been enough to recommend them as infallible. In England and this country, on the contrary, no government could pretend to the despotic control, even if it possessed the requisite attainments, necessary to originate and enforce a change. It is a subject alike out of the sphere of the legislatures and executives, who are, therefore compelled to devote its consideration upon some other competent deliberate body, and, as to each member of such a body, his own ideas naturally appear the most simple and efficacious; years are consumed in the work of mutual conversion, before they can agree upon the basis whereon their superstructure of practical calculations is to be raised.

There are many who think that any alteration of established weights, measures, or coins, must be injurious, whatever may be the abstract merit of the proposed innovation; and there are others who doubt the practicability of introducing any changes without a long period of confusion, and the conquest of a large force of resistance. This may be true to a certain extent; but when shall we be better prepared for a change? It can be nothing more than a trivial sacrifice on the part of some of the present generation for the benefit of their successors. One thing, however should be borne in mind, that is, whatever system of weights and measures Great Britain may choose to devise, it will be highly important for us to adopt, in consequence of the intimate connection of the commerce of the two countries. In this respect, it is desirable that the fundamental bases of the weights, measures, and coins of all the countries with which we have commercial intercourse, should be the same; but this could not be done without producing, for a long period, confusion, injustice and error.

The great desideratum in establishing a new system of weights measures, and coins, is, that the *quantity* and the *money* should be subdivided in the same way,

that is, reduced to the same notation; and the best notation for the purpose is, of course, that which is the common base of arithmetic nearly all over the world, namely, the decimal—a scale which, as it ascends from units to tens, hundreds, and thousands, so also descends to tenth, hundredth, thousandth parts, &c. Such a system, both as regards their weights and measures, and their coins, has been successfully carried into practice in France and Netherlands, and as far as the coins are concerned, in the United States.—With such a general notation, the keeping of commercial accounts would require nothing but the expeditious process of common addition, subtraction, multiplication, and division. Suppose, for example, that the pound in weight, and the pound, or dollar, in money, were both subdivided into tenths, hundredths, and thousandth parts, (call them if you please, dimes, cents, and mills,*) then five pounds, six dimes, three cents, and four mills, in weight, would be expressed by 5.634 lbs., and the value in money at two pounds, six dimes, eight cents, four mills, or £2.684 per lb. avoirdupois would be arrived at by merely multiplying the two expressions together, producing £15.122. This example is an extreme one, and is only given for illustration. Indeed, those who are familiar with the facilities of decimal arithmetic, we trust will not accuse us of exaggeration in saying, that if the weights, measures, and moneys of the two countries, were brought under that notation, any one moderately expert in simple multiplication and division, might acquire a proficiency in making up accounts, invoices, &c. in a few hours.—Under the present system, years are spent in the earlier part of life in learning rules "by heart," which are seldom long remembered; and acquiring a knowledge of formulae which are still more seldom understood, almost every one being compelled, in after years, to supply himself with what his tutor failed to impress upon his memory, by a sort of mental arithmetic of his own. By substituting the decimal system, this would be entirely done away with. Instead of the tutor wanting an "assistant," the pupil, as far as the arithmetic of the shop and counting room is concerned, would have but little need of assistance; and, as the ground work of commercial knowledge would thus require less time and talent, those intended for commercial occupations would be able to devote more ability and greater opportunities to the attainment of a higher order of knowledge that would be useful to them in their pursuits, than under the old regime can be expected from them, until they have acquired it by a long course of actual experience.

Having thus described the advantages of a purely decimal system, we would name three great principles by which, it is hoped, the "Commission" has been guided. First, that the old integral bases should be preserved in every case where there are not very strong reasons to the contrary; secondly, that whenever the integral base is altered, it should be mainly with a view of facility in converting values and quantities from the old scales into the new; and thirdly, that the number of scales used should be reduced, as much as possible, without producing a greater degree of inconvenience than their suppression would remove.

The importance of preserving the old integral bases will be obvious to any man

* We learn that some such nomenclature as this will be proposed in the Report.

of business from the following reasons. Almost every commercial house has a multitude of old accounts to which reference is frequently necessary; and as it would be required to translate the particulars of them into the language of the new system, that language should be assimilated as far as possible to the arithmetical language now in use. By preserving the sovereign or pound sterling of Great Britain, for instance, as the integral base for money in that country, no other labor would be imposed on the accountant than converting the fractional parts now in use to their equivalent decimal expression, an operation with which any one may become familiar in a few hours' practice. Then all the new coins of that country of a denomination less than a sovereign would be required to express the tenth, hundredth, and thousandth parts of the pound sterling; and not only can any value under the pound sterling be set forth in those three parts alone, with greater convenience and to a greater degree of nicety than by the nine coins now in circulation for the purpose; but the silver coins as low as sixpence now current may be expressed determinately in them, and would therefore cause little embarrassment should it be found impracticable to withdraw them wholly at once. The crown, for example, would be two dimes and five cents, or 25-100 of a pound; the shilling, five cents or 5-100 of a pound; the sixpence, two cents and five mills or 25-1000 of a pound. the penny, four mills or 4-1000 of a pound; and the farthing, one mill or one-thousandth of a pound.

With regard to the legal coinage of our own country, it probably could not be improved, with the exception of a slight alteration in the weight of our cents; but when we come to the obtrusive, incongruous, and illegitimate eighth and sixteenth dollar pieces of Spain, a sweeping change seems necessary. The change could readily be effected by reducing the value of the 12½ cent pieces to 10 cents, and the 6½ cent pieces to 5 cents, which would soon drive them out of the country, after the manner of the old pistareens a few years since. No individual who has long resided among us, can be ignorant of the inconvenience and perplexity he has met with by the use of these coins, and can be so prejudiced as not to be willing to have them abolished. With these alterations, only a slight change would be required in our laws, such as the reduction of postage from 18½ cents to 15 cents; 12½ cents to 10 cents; 6½ cents to 5 cents, &c., which has long been called for, and a few others.

Presuming that the foregoing advantages are sufficiently obvious to create a change in moneys, we shall next endeavor to show wherein the system of weights and measures can be improved, which will be equally applicable to both countries.

1. MEASURES OF LENGTH.—The unit of the measures of length, we conceive should be the present yard of Great Britain and the United States, from which all other measures of extension, whether they be lineal, superficial, or solid, should be derived, computed, or ascertained. For scientific, mechanical, mercantile, and retail purposes, it should be divided into tenths, hundredths, and thousandths, which can be made to express any other fractional part of a yard that would be likely to occur in business. For instance, 2½ yards would be written 2.125; 2¼ yards, 2.25; 2⅓ yards, 2.375; 2½ yards,

2.5; 2½ yards, 2.625; 2⅔ yards, 2.75; 2¾ yards, 2.875, &c. For itinerary, marine, and agrarian purposes, two yards would constitute one fathom; 5½ yards, one rod; 22 yards, one chain of 100 links; and 1760 yards, one statute mile; the latter terms and quantities having long been used in both countries to define distances on maps, charts, deeds, grants, and other important documents, to which reference is often required, and consequently should be preserved. The terms feet, inches, and lines should be abolished, their places being supplied by the tenths, hundredths, and thousandths of a yard. All old measures of feet and inches can readily be reduced to yards and the decimals of a yard, by dividing the feet by 2, and the inches by 36.

By the new system, the chief implements to be used in measuring would consist of a rule or line one yard in length, graduated on one side into tenths, hundredths, and thousandths; and on the other, into eighths, quarters, halves, &c.; or of shorter or longer rods or lines graduated into the subdivisions or multiples of a yard; and the Gunter's Chain 22 yards or 100 links in length, which has long been used in both countries for agrarian measures.

2. MEASURES OF SURFACES.—The unit of the measures of surface, might consist of the square yard, which could also be divided into tenths, hundredths, and thousandths, and be made to express any other fractional parts of a yard. 4840 square yards would, as at present, constitute an acre, which could likewise be divided into tenths, hundredths, thousandths, &c. and be made to express any other fractional part of an acre. The terms rood and rod, would very properly be discontinued, which could easily be reduced from the old system to the new, the former being just 0.25 and the latter 0.00625 of an acre.

3. CUBIC OR SOLID MEASURE.—The unit of this measure might very conveniently be made a cubic yard, which could be divided into tenths, hundredths, thousandths, &c., for merchants and engineers, and into tenth-yard, hundredth-yard, and thousandth-yard cubes for other purposes.

Wood and timber could be bought or sold by the cubic yard, which might likewise be divided into tenths, hundredths, thousandths, &c. Then the most convenient lengths to cut market fuel would be 1, 1½, and two yards. The term *ton*, as applied to rough and hewn timber, and to shipping in a cubit sense, might be discontinued, and cubic yards substituted in their stead.

4. LIQUID AND DRY MEASURES.—The unit of liquid and dry measure might very properly consist of the old wine gallon, which contains, at present, 231 cubic inches. It could be divided into tenths, hundredths, and thousandths, &c., which can readily be made to express any other fractional part of a gallon that would occur in practice. The bushel might contain 10 gallons, "strict measure," and should not be used for any other purposes than measuring such materials as cannot be consistently bought or sold by weight. It might also be divided into tenths, hundredths, thousandths, &c., which could be made to express eighths, quarters, halves, &c. as exemplified in the measures of length. The old denominations, quarters, weighs, lasts, cooms, pecks, pottles, &c. &c., might be discontinued.

The measures necessary to be used would be the bushel; 50-100 or ¼ bush-